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GROUP DISPERSION AND  
CONFORMITY

BY



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Group Dispersion and Conformity" submitted by Ellen Mary Jastrebske in partial fulfilment of the requirements for the degree of Master of Arts.





## Abstract

The well-established observation that people behave differently in the presence of others than when alone is the phenomenon underlying conformity research. Three variables were examined in the present study to focus on what causes people to adjust their responses under pressures from other persons. A 2X2X2 factorial design was used to test the influence of group dispersion, direction of advocated shift and judgmental bases on conforming responses. The major hypothesis predicted an interaction in which conformity was maximized with homogeneous group dispersions under an empirical judgment base whereas conformity was maximized with heterogeneous group dispersions under a social judgment base.

Subjects were preselected for the study from a battery administered earlier in the year. The criterion for the subject population was noninvolvement in the stimulus-items. Each subject's critical items for the experiment were individually selected on the basis of this criterion.

Subjects participated in the experimental sessions in groups of five. Influence was manipulated by making the responses of four other subjects available on each trial. These responses formed dispersions which were either dispersed or homogeneous. Instructions indicating that norms were available provided the empirical basis for judgment while alternate



instructions indicating lack of standardized norms provided the social basis of judgment. One half of the subjects received ratings of others which were numerically above their initial ratings while the remaining subjects received ratings of others which were numerically below their initial ratings. This constituted advocacy of positive and negative shift respectively.

Analysis of the data obtained from 70 subjects provided only limited support for the hypothesis. The results suggested that the predicted interaction may occur under advocacy of positive but not under negative shift. Lack of significant support for such a three factor interaction may have been partially due to the uncontrolled stimulus-items content. The hypothesis needs to be further examined under conditions where better control can be maintained over the stimuli.

The major significant finding was that direction of advocated shift is an important variable and should not be counterbalanced as is usually done. This variable may also enter into interactions with other variables comprising the stimulus-complex in such a way as to either nullify or enhance their effects.



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## Table of Contents

	Page
Abstract.....	iii
Acknowledgements.....	v
List of Tables.....	vii
List of Figures.....	viii
List of Appendices.....	ix
Introduction.....	1
Method.....	13
Subjects.....	13
Materials.....	13
Design.....	14
Procedure.....	15
Results.....	21
Analysis.....	21
Discussion.....	29
Summary and Suggestions for Further Research.....	35
References.....	38
Appendices.....	42





List of Tables

	Page
Table 1 Group Means of Total Conformity Scores.....	22



List of Figures

	Page
Figure 1 Graphic Comparison of Means Tested by the Duncan's Test	23



## List of Appendices

	Page
Appendix A Item Questionnaire.....	43
Appendix B General Instructions.....	46
Appendix C Socially Oriented Instruction Set.....	47
Appendix D Empirically Oriented Instruction Set.....	48
Appendix E Recorder Instructions.....	50
Appendix F Recorder Chart.....	51
Appendix G Favorability Questions.....	52
Appendix H Total Conformity Scores.....	56
Appendix I Summary of an Analysis of Variance of Total Conformity Scores.....	57
Appendix J Summary of an Analysis of Variance on Conformity Scores of Total Sample.....	58
Summary of Duncan's New Multiple Range Test for Means of Total Sample.....	59
Appendix K Summary of an Analysis of Group Means with Duncan's New Multiple Range Test.....	60
Appendix L Summary of an Analysis of Variance on Scores for Favorability Item One.....	61
Appendix M Summary of an Analysis of Variance on Scores for Favorability Item Two.....	62
Appendix N Summary of an Analysis of Variance on Scores for Favorability Item Three.....	63
Appendix O Summary of an Analysis of Variance on Scores for Favorability Item Four.....	64





## Introduction

That people behave differently in the presence of others than they do when alone is a well-established observation. This phenomenon has given rise to the experimental and theoretical work on conformity. Conformity research is concerned with what causes people to adjust their responses under either overt or more subtle communication pressures from the real or imagined presence of others.

In considering the theoretical basis of conformity, one approach has been to view the group of other persons as a complex perceptual object. If it can be assumed that subjects in a group have no specific knowledge of the other group members' opinions, it is postulated that they will form some composite judgment of the group as a whole perceptual object or total configuration. This judgment will be based on characteristics that are perceived as being common to all the group members and as such, represents a generalization. This situation applies especially to the relatively anonymous group which tends to be regarded as a complex object (Levy, 1964; Rule and Renner, in press). Various aspects of this complex object can serve as parameters in determining changes in the subjects' positions on various issues. The aspects focused upon by researchers have included both characteristics of the observing subjects and characteristics of the group as a complex whole. Other situational aspects to be given research attention have included



characteristics of the stimuli or required task.

The process underlying position change here appears to involve cognitive weighing of all the situational cues into some whole configurational effect which determines a response. This process need not necessarily be rational or logical. Several formulations have been advanced to account for the non-logical nature of the process. One such theoretical formulation of the weighted motivating base for conforming responses has been in terms of self-defensive needs (Katz, 1960); another formulation is the Brehm and Cohen (1962) elaborations of cognitive dissonance theory. The latter authors examine reduction of tension or dissonance responses as a process of least effort or resistance which the person has available to him under the given circumstances. Hence, dissonance reduction is seen as a parsimonious change of those elements which are the most easy to change for purposes of restoring or maintaining cognitive balance.

Still another approach to the process underlying position change is in terms of individual information processing capacities (Levy, 1964, 1967) where persons form their impressions by regarding the given array of information as representing a sample of the total possible information which could constitute the stimulus. This is a statistical inference model perhaps characterizable in approach-avoidance terms (Levy, 1964) and



related to the presence or absence of threat or tension. Persons are viewed here as preferring some optimum level of cognitive uncertainty related to their information processing capacities (Munsinger and Kessen, 1964).

In this model stimulus variance is regarded favorably only if the situation is otherwise perceived in favorable or approach terms. However, when the stimulus characteristics include variance in a situation that is already negative or threatening, the variance increases the negativity of the total situation. The latter may occur because the variance serves to augment the demands on individual information processing capacities in an already unfavorable situation. The difference between this model and the cognitive dissonance one lies in the amount of variance individuals are hypothesized to prefer. Levy's theory allows for classifying situations in terms of a favorable to unfavorable (or approach to avoidance) hierarchy where variance increases the valence already attached to the situation and can thereby be either positive or negative. In contrast, cognitive dissonance theory makes no specifications regarding favorability of situations but simply postulates that the generally preferred state is the one with the least variance.

Perhaps Levy (1964) himself has pointed to the direction of possible resolution of his results with those hypothesized by cognitive dissonance theory. Stimulus-



characteristics may be arranged hierarchically in terms of their demands on subject attention or in terms of their capacity to control behavior. In such a scheme, attributes having survival value may be attended to first. In such situations some threat may be more inherent than in other cases without survival overtones; consequently, simplicity may be the preferred state (as dealt with by the theory of cognitive dissonance). However, if there is no inherent threat to survival, other aspects of the stimulus-complex may come to exert their influence on behavior, thus allowing stimulus-complexity to function as a rewarding state. This follows from the line of researched behavior termed "exploratory" or "curiosity-seeking" (Berlyne, 1960; Dember, 1960; White, 1959) wherein the organism has been demonstrated to remain active given satiation of basic needs (tension in cognitive dissonance terms).

In application of this to the group situation, persons may be expected to have learned to attach different valences to particular groups as a function of the groups' usefulness for specific stimuli judgments. Thus, a collective peer group stimulus may be positively valenced if it is the major source of information regarding situational stimuli but may be negatively valenced if it only serves to further complicate a stimulus-situation where other sources of information are available. The latter may especially be the case if the





group opinions conflict with the other available information since here the subjects will have to choose between the credibility of the group stance and that of the other information source. Levy (1964) has interpreted lack of preference for dispersion (hence, simplicity) with negatively valenced groups as being due to the presence of tension. He has also associated preferences for greater variance (hence, greater complexity) with absence of tension as would be the case if the group was the only source of information, or if the group and the other sources of information were congruent.

Two characteristics of the group as a collective stimulus that have been examined regarding elicitation of conforming responses are the distance and variance variables. Distance refers to the degree of difference between the individual's position and that of the group or initial subject-group discrepancy. It appears to enhance the effects of other variables operating in the stimulus-complex without necessarily interacting with them (Rule, 1964). At least two other variables on which distance has differential effects are subject involvement and prestige of source of information (Diab, 1965, 1966; Freedman, 1964; Lubin and Fisher, 1958; Sherif and Hovland, 1961; Singer, 1965-66; Rule and Renner, in press; Vaughan, 1964; Zimbardo, 1960). Since the distance variable appears to be one whose functions are dependent on the



presence of other variables, it was not directly examined in this study. The second variable, variance, refers to the amount of spread of the positions represented in the group. The effects of differing group dispersions on conforming responses were focused on in this study.

Variance of group opinions has been cited as a definite part of the complex stimulus situation (Berlyne, 1960). It has been suggested that subjects treat variance as a potential source of error and use it to determine the degree of attraction the group will have (Levy, 1964, 1967; Goldberg, 1954; Rule and Renner, in press). Some researchers report greater subject attraction to groups with greater variance (Berlyne, 1960; Dember, 1960; White, 1959). Alternately, Festinger's cognitive dissonance theory (1957; Cohen, 1959) predicts that subjects strive to keep dissonance at a minimum and should therefore prefer a simplified stimulus-environment. Levy has offered an interpretation of these results in terms of variance relatedness to attraction where preference for dispersion was significant with positively valued groups. Variance was suggested as being an attractive attribute of the complex stimulus only in the absence of threat where it was seen as offering a greater scope for the exercising of individual information processing capacities. Variance was, alternately, regarded unfavorably where the stimulus-groups were valued negatively and was interpreted as



being aversive if exceeding the information processing capacities of the subjects. This interpretation suggests that group variance is an enhancing type of variable whose connotative significance for the subject depends on the prior overall valence of the stimulus being judged. Also of relevance here are Pederson's (1967) findings that a confederate who gave a constant estimate (fixed position) effected no influence on the subjects' judgments. When the confederate gave varying estimates of the stimulus display, a between trials influence was noted. These results were obtained in a follow up study of Fisher and Lubin's (1958) results where confederate estimates affected both within-trials influence (on the same display) as well as the initial estimate of the next display prior to any actual influence attempt on the new display (between trials influence). The authors suggested the amount of carry-over to the new trial was a positive function of the subject-confederate discrepancy on the previous trial. Pederson (1967) showed that this function held only when the confederate varied his judgments so as to maintain a constant level of discrepancy between himself and the subject: the hypothesized function of influence did not hold when the confederate gave constant estimates within each trial.

Relative to conformity, this influence of self-group discrepancy points to two divergent effects. In line





with cognitive dissonance theory, Rule and Renner (1965) reported that homogeneous group dispersions produced significantly more conformity than heterogeneous group dispersions. This study showed that the distance and group dispersion variables had significant and independent effects on opinion change with written attitude statements stimuli concerning decisions. These results were an extension of an earlier finding (Rule, 1964) using judgments of weights. The effects of type of group dispersion are therefore not limited to a particular stimulus but seem to apply to both relatively subjective and objective stimuli. A later study (Rule and Renner, in press) showed a reverse result of increased group dispersion inducing greater conformity where stimuli were a variety of opinion statements. The authors suggest that these findings may have been due to preferential differences effected by different bases for judgments. Some judgmental situations may result in preferences for stimulus-complexity while other stimulus conditions may effect preferences for stimulus-simplicity. For example, complexity or dispersion of opinions may be preferred if the subjects have little other information beyond these to judge the stimuli by such as in the case of opinion statements. Alternate preferences for simplicity in group opinions may be displayed when the subjects have other situational information present and are



required to make a decision regarding an attitude statement stimulus.

If these results are applied to the conformity situation, the following relationship can be postulated. When opinions solicited are apparently based on factually or empirically validable issues, information about other group members' opinions may not be very great importance and not very favorably received. Preferences for homogeneity or the least group dispersion should be present and result in more conformity. However when issues apparently are such that they lend themselves to a social group consensus judgment, subjects should be more interested in other group members' opinions and more receptive to these evaluations. Subjects should therefore be more attracted to groups having a greater variance and conform more to such groups. This study evaluated the effects of socially validable as opposed to factually or empirically validable orientations or bases of judgments towards stimuli-items in conjunction with homogeneous and heterogeneous group dispersions.

Testing the effects of different sets or orientations on the subjects' perceptions of the stimuli has usually been done via differing instructions meant to emphasize different aspects of the whole for the subjects to



attend to in making their judgments. One of the earliest formulations of different bases for judgments was the informational-normative dichotomy (Deutsch and Gerard, 1955) which has been of considerable heuristic value. Other dichotomous judgmental bases which have been proposed include the source-content orientation (McDavid, 1959), the task-person orientation (Blake, 1957) and the simple stimulus-response or stimulus-task one (reinforcement theory).

More complex multi-dimensional judgmental bases have been suggested by others in terms of antecedents-consequences (Kelman, 1961; Klein, 1967), and in terms of individual needs aroused by a situation and which the individual attempts to fulfill such as those related to the self-concept, the cognitions of reality and information regarding his world, and ego-defenses (Katz, 1960). These bases follow from the general theorem that all behavior including that classifiable as conformity serves some function for the individual in aiding him to cope with his world. Such formulations are an alternative to the more usual dichotomous conceptions but they represent only possibilities for further development since they have considerably less research operationalizing them than do the dichotomous base conceptions. The bases-of-judgment variable was manipulated in terms of the dichotomous conceptions of factual-empirical and social consensus bases in this study.



Theoretically a refinement of the original Deutsch and Gerard concept, these judgmental orientations were provided here in the form of instructions designed to furnish the appropriate basis for judgments.

The major hypothesis advanced was that conformity would be greatest with homogeneous group dispersions for issues having empirically based validations whereas with heterogeneous group dispersions conformity was expected to be greatest for issues having socially based validations. The hypothesis was investigated by use of two group dispersions which were presented under two instructional sets. One instruction set aimed at providing subjects with an outlook which would elicit responses to seemingly socially validable opinions; the other instruction set aimed at providing subjects with an outlook which would elicit responses to seemingly factually validable issues. Holding distance constant at a mean of twelve units from the subjects' original position, the homogeneous group dispersion was defined as the ratings of four other group members having a spread of  $2\sqrt{2}$  among the individual ratings; the heterogeneous group dispersion was defined as the ratings of four other group members with a spread of  $4\sqrt{2}$  among the individual ratings. The basis for this choice of specific constants for defining group dispersion was to replicate the group variances used in the prior study (Rule and Renner, in







press) from which the major hypothesis examined here was taken.

In considering change of opinions another issue on which relatively little information is available became apparent. This the variable of the direction of advocated shift. It seemed likely that whether the pressure to change urges shift in a positive or negative direction might exert differential effects. Yet the two levels are typically counterbalanced within a given study. Greater conformity to positive shift may be effected by the greater reluctance of subjects to disagree more on issues which are personally noninvolving and with which they have very limited familiarity. Increased conformity to positive shift advocacy could also be the result of a positive bias tendency similar to that noted in studies of personality trait evaluations.

It is also possible to consider reasons for the alternative negative shift advocacy producing greater conformity. Negative evaluations of stimuli may be taken as indicative of the sophistication of the criticizer and his knowledgeability regarding such stimuli. Such evaluations may have increased significance with stimuli which are typically thought of as being socially evaluable or during time spans when fads regarding certain objects or viewpoints are being established.

Because of these possibilities, direction of advocated change was manipulated within the design of this study.



## Method

### Subjects

Subjects were 80 male Psychology 202 freshmen who participated to meet course requirements.

Subjects were selected on the basis of the extent of their agreement with questionnaire items. On initial administration of the questionnaire, subjects were asked to indicate the extent of their agreement with the items on a scale of 0 to 100 where 0 indicated complete disagreement and 100 indicated complete agreement; subjects were also asked to indicate the strength of their feeling regarding each item (the degrees of strength of feeling being "very strongly", "fairly strongly", and "neutral"). The population of experimental subjects was then selected on the basis of two qualifications: a numerical range of 40% to 60% agreement and checking the "neutral" category for at least three of the twelve items in the questionnaire. The two qualifications composing the criterion constituted the operational definition of subject noninvolvement in the issues.

### Materials

A questionnaire of twelve items on varied topics was used. The topics included statements on artistic



preferences, political preferences, and items of a statistical-factual type. Appendix A contains a copy of the items-questionnaire used.

Slips of paper with subject identification numbers and numerical ratings were also prepared. These were used as the bogus judgments of the other participants during each of the sessions. To this end, each of the four bogus judgments given to each subject was in a different handwriting.

### Design

Eight groups of ten subjects were subsequently selected from the restricted population and arranged according to a  $2 \times 2 \times 2$  factorial design with two instruction sets, two group dispersions, and two directions of change. The levels for the instruction sets were empirically and socially validable bases; for the group dispersions, the levels were heterogeneous and homogeneous dispersions (operationally defined as  $4\sqrt{2}$  and  $2\sqrt{2}$  respectively), and the levels for directions of change were positive and negative. The discrepancy between the subjects' opinions and those of the other group members as well as the subjects' involvement in the issues were held constant. This is because these two variables have been demonstrated to interact wherein involvement is a crucial factor in determining whether a linear or more nonmonotonic relation will result between distance and the



amount of conforming position shift. These differences in subjects' responses to involving and noninvolving issues appears to be well established (Sherif and Hovland, 1961; Lubin and Fisher, 1956; Rule and Renner, in press). More extreme involvement has typically yielded little shift of position except where the source is a prestigious one (Vaughan, 1964; Zimbardo, 1960). The reverse has happened with noninvolving issues which have usually lended themselves to change of position with more ease and in a more monotonic fashion. In view of these results, the present study was limited to noninvolving issues with the mean group distance held at twelve units from subjects' initial positions. This was reasoned to be a moderate distance which would effect almost optimal conformity.

#### Procedure

The first administration of the questionnaire was as part of a battery given to all Psychology 202 students during the initial part of the term. The subjects from the preselected population were later contacted for participation in the experiment.

Subjects were run in groups of five per session.

On entry into the experimental room, each subject's name was checked off upon his choice of a cubicle.





Each cubicle contained a pencil, a small pile of loose sheets of paper (which matched the kind of paper used for the bogus ratings), and a general instructions sheet (see Appendix B).

Subjects were directed to read the general instructions sheet on their tables. On completion of this, the experimenter delivered either one of the two instructional sets (Appendices C and D) verbally. One instruction set alleged that the purpose of the study was to establish norms on the items under controlled lab conditions. This constituted the socially oriented base or instructions. The second instruction set provided the operational definition of the empirically oriented base and alleged that the purpose of the study was a comparison of the students' ratings on items which had been evaluated by experts in the field. It was indicated in the general instructions that one subject would serve as the group recorder to facilitate the experimental procedure. Subjects were permitted to ask procedural questions following which the experimenter went to the back of the cubicles (out of sight of the subjects) and distributed a recorder instructions sheet (Appendix E) and a recorder chart (Appendix F) to each subject. Delivery of item one was orally announced simultaneously with passing out of the recorder instructions and chart, but the



item-cards were not actually passed out until about 60 seconds later. This was done to allow subjects time to read the recorder instructions and examine the recorder chart. During this interval, the experimenter shuffled papers sporadically while walking behind the cubicles to simulate ostensible collection of the ratings of the stimulus from the other group members. Subjects were then given the first item-card and the bogus ratings of the other participants. When some of the subjects passed back the first item-card and the fictitious ratings, delivery of the next item-card was orally announced. The actual delivery of the next item-card was delayed for about 45 seconds or until most or all group members had passed back the first item-card. A brief time gap between announced and actual delivery of the stimulus-item was used here again to simulate collection of the ratings of the other group members. The bogus ratings for stimulus-item two were given to each subject immediately after his receiving of the item-card. The same procedure of oral announcement followed by a brief interval of ostensible collection of the ratings prior to actual delivery of each item was continued for the duration of each session.

As recorder for the group, each subject received the prearranged fictitious ratings which he believed were those



of the other participating group members but which in fact were experimentally manipulated ratings based on his initial ratings of the items. Each subject was led to believe that he was judging the items just rated by the other group members present, and that as recorder for the group he was given the others' judgments to record. After recording the fictitious ratings, the subject then recorded his own judgment of each item. These ratings were individually distributed and collected for each item (according to the general instructions).

The fictitious ratings were arranged prior to each session to satisfy the experimental conditions. The two levels of group dispersion (variance) were arranged numerically below the subjects' initial positions for positive and negative direction of advocated shift respectively.

The three preselected items using the criterion of neutrality comprised the individually selected critical items for use during the experiment and were also the basis on which the conformity scores were calculated. The dispersion received by each subject was therefore also individually arranged based on his prior rating and satisfying the experimental conditions. Remaining questionnaire items were used randomly as buffers for a total of seven trials. The dispersions were not fixed for the buffer items. However an attempt



was made at reducing any noticeable discrepancy of these dispersions from those used for the critical trials by limiting the range of the ratings. Where subjects received heterogeneous dispersions for the critical trials, the range of the buffer dispersions was limited to a maximum of 26 units; where subjects received homogeneous dispersions for the critical trials, the range of the buffer dispersions was limited to a maximum of 18 units.

Following collection of the subjects' final ratings as well as of the fictitious ratings and the recorder sheet after the final item, subjects were administered the booklet containing the favorability questions (Appendix G). These questions asked for indications of the subjects' general interest in seeing the ratings of others on the issues in question, the subjects' degree of preference under the given instruction set for the type of group dispersion given as well as their degree of preference for the type of group dispersion under the alternate instructions set, and the subjects' own personal preference in group dispersion.

When these booklets were completed and collected, subjects were permitted to ask procedural questions. They were informed of the experimental manipulation involved in acting as a group recorder and their cooperation was solicited about not discussing details of the experiment with their





classmates because such discussions could defeat the purpose of the experiment. A more detailed written explanation was promised when all the sessions has been completed.



## Results

### Analysis

Dependent variables were the total conformity scores and the ratings on the four favorability questions. The conformity scores\* were defined as the amount of change in subjects' judgments between initial item ratings and subsequent ratings of the selected items under experimental conditions.

The individual conformity score representing the difference between pre-experimental and experimental opinions was a sum of the amount of shift of positions over the three critical trials. When subjects shifted positions in the direction of the group, the change was designated as a positive one. When subjects shifted positions in the opposite direction to the group, the change score was designated as negative. Appendix H shows the summed conformity scores of each individual in each of the group conditions. A 2X2X2 analysis of variance of unweighted means (Winer, 1962) was used on the data. The factors were direction of shift, instruction set and type of group dispersion.

\*Subjects who indicated suspiciousness of the procedure were eliminated from the analysis. Appendix J contains a summary of an analysis of data using the complete sample of 80 subjects. The analysis discussed herein and otherwise in the text is based on a sample of 70 subjects.



Table 1

## Group Means of Total Conformity Scores

	Instructions			
	Socially Oriented(A <sub>1</sub> )		Empirically Oriented(A <sub>2</sub> )	
	Direction of Shift		Direction of Shift	
	Positive(B <sub>1</sub> )	Negative(B <sub>2</sub> )	Positive(B <sub>1</sub> )	Negative(B <sub>2</sub> )
Degree of Dispersion Heterogeneous(C <sub>1</sub> )	29.0(F)	20.333(C)	23.333(D)	24.25(E)
Homogeneous(C <sub>2</sub> )	34.8(G)	14.825(A)	43.555(H)	19.875(B)

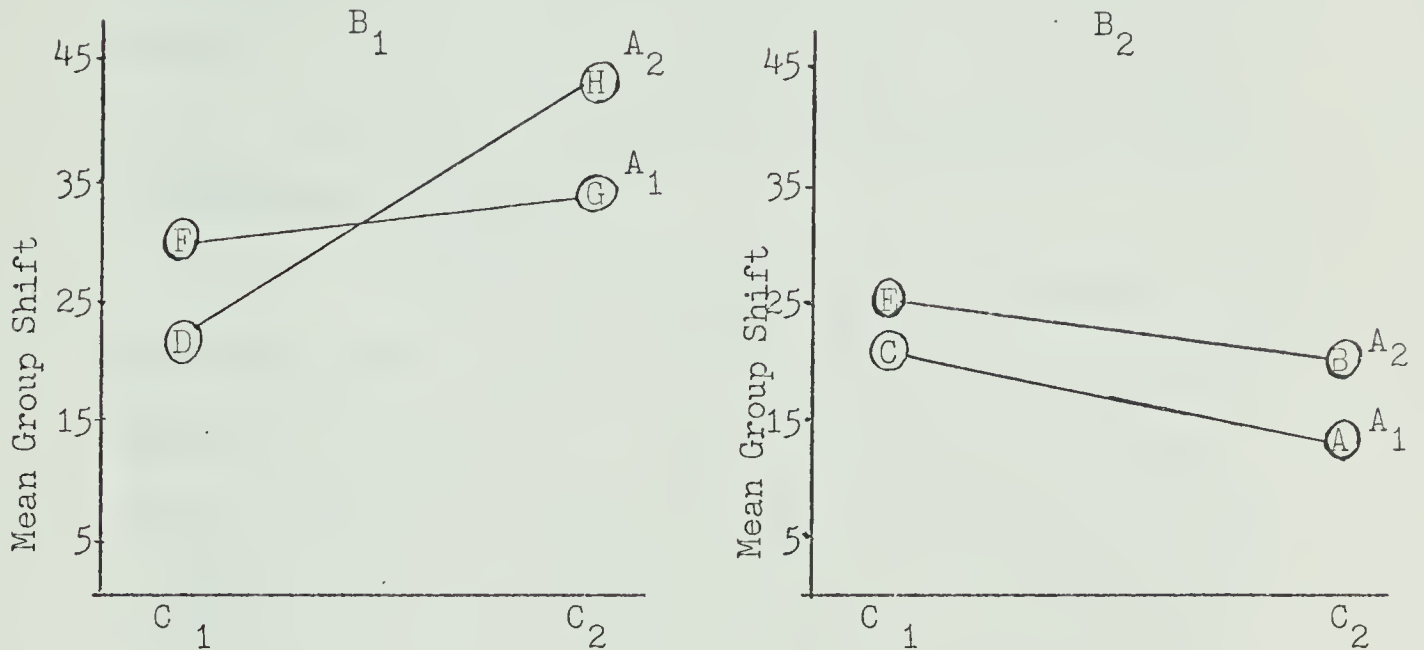
Legend:

(A) to (H) after the above group means corresponds to the alphabetic ordering of means according to increasing magnitude for the Duncan's test (given in Appendix K).



Figure 1

Graphic Comparison of Means Tested by the Duncan's Test



Legend:

A<sub>1</sub>-Socially Oriented InstructionsA<sub>2</sub>-Empirically Oriented InstructionsB<sub>1</sub>-Positive ShiftB<sub>2</sub>-Negative ShiftC<sub>1</sub>-Heterogeneous DispersionC<sub>2</sub>-Homogeneous Dispersion

Means (A) to (H) refer to the respective means tested by the Duncan's test (Appendix K).





The direction of shift main effect yielded the only significant result ( $F = 37.587$ ,  $df = 1, 62$ ,  $p < .01$ ). The means for the positive and negative shift were 32.75 and 19.70 respectively. A summary of the analysis of variance is presented in Appendix I.

A Duncan's New Multiple Range Test (Winer, 1963) was subsequently applied to test the differences among the group means (Appendix K). Under advocacy for positive shift, homogeneous dispersions effected significantly more conformity than heterogeneous dispersions. The influence of homogeneous dispersions on shifting of positions was enhanced by the empirical validation instructions set. None of the observed means were significantly different from each other under advocacy of negative shift.

A  $2 \times 2 \times 2$  analysis of variance (unweighted means) was also performed on each of the favorability item scores (Appendices L, M, N, O). The raw scores for each subject were his ratings on a seven-point scale.

Favorability item number one read as follows:

'I (was very interested to not very interested) in seeing the opinion-ratings of other students on these issues.'

A rating of one here represented being "not very interested" and seven represented the opposite extreme of being "very interested". Subjects checked one of the seven possible



positions to indicate their choice. The analysis of variance on these scores yielded no significant differences.

Favorability item two tested preferences for group dispersions under the given level of the instruction set factor. One half of the subjects (those actually given the socially oriented instruction set) received the following statement:

'In making judgments on issues which have not yet been evaluated under standard lab conditions and knowing that my ratings would be used for these purposes, I would be interested in discussing my ratings with a group whose opinions were (very similar, or clustered very closely to different from each other, or widely dispersed).'

The remainder of the subjects (those actually given the empirically oriented instruction set) received the following statement:

'In making judgments on issues which had already been evaluated by such experts as artists, sociologists, and statisticians, I would be interested in discussing my ratings with a group whose opinions were (very similar, or clustered together very closely to very different from each other, or widely dispersed).'

A rating of one for this item was assigned to



the most extreme position of preference possible for the homogeneous or closely clustered group opinions and the alternate extreme of a score of seven indicated the opposite position of preference for the group whose opinions are widely dispersed. An analysis of variance on these scores (combined over both instruction sets) yielded no significant results.

Favorability item three tested the group dispersion preferences under the opposite instruction set to the one actually given. One half of the subjects (those under the empirically oriented instruction set) received the following statement:

'If I had been aware that these issues had not yet been evaluated under standard lab conditions and knowing that my ratings would be used for these purposes, I would have been interested in discussing my ratings with a group whose opinions were (very similar or clustered very closely to very different from each other or widely dispersed).'

The remaining one half of the subjects (those under the socially oriented instruction set) received the following statement:

'If I had been aware that these issues had already been evaluated by such experts as artists, sociologists, and



statisticians, I would have been interested in discussing my ratings with a group whose opinions were (very similar, or clustered together very closely, to very different from each other or widely dispersed).'

This item was scored in the same manner as item two, a score of one representing a preference for closely clustered together group opinions, and a score of seven representing the opposite extreme of preference for wide group dispersion of opinions. An analysis of variance on the scores combined over both instruction sets yielded no significant findings.

Favorability item four tested the usual personal preference for type of group dispersion. The following statement was used:

'In general, I personally prefer a group whose opinions are (similar to my own with little discrepancy to markedly different from my own and having fairly wide discrepancy).'

A score of one was assigned to the indication of preference for group opinions similar to one's own with little discrepancy and seven was assigned to indications of preference at the opposite extreme of different from one's own with wide discrepancy. An analysis of variance performed on these scores yielded a significant instructions by direction of shift interaction ( $F= 7.022$ ,  $df= 1,62$ ,  $P<.01$ ). A comparison





of the four means under heterogeneous dispersions suggested that advocacy negative shift under empirically oriented instructions was significantly different from the other combinations of factor levels in producing the least preference (3.25 was significantly different from 4.0, 4.22, and 4.66). Alternately, under homogeneous dispersions, advocacy of negative shift under empirically oriented instructions was significantly different from the other combinations of factor levels in producing the maximum amount of preference (3.125 was significantly different from 3.6, 4.0, and 3.75). Since this result did not appear to be of any relevant theoretical interest, it will not be further considered.



## Discussion

The data indicated that direction of advocated shift was an important variable. When attempted experimental influence was in a positive direction, subjects were willing to shift positions much more readily. This may be because such shifting signified greater agreement with the total situational cues. This tendency may be related to the positive bias tendency observed in personality judgments where people are unwilling to assign more negative values to the stimulus, especially under minimal familiarity with the stimuli. Alternately, advocacy of shift in a negative direction may be seen as associated with a critical outlook or taking a derogatory stand towards the stimuli. Subjects may be much more reluctant to shift in this direction, especially when they are quite unfamiliar with the issues.

The major hypothesis predicted increased conformity and preference for heterogeneous group dispersions under the socially based instruction set where information was purportedly required for the establishment of norms. Concomittantly, increased conformity and preference for homogeneous group dispersions was predicted under the alternate instruction set where expert information was supposedly already available on the issues. Analysis of



the conformity scores provided no support for the hypothesized interaction. Although dispersion type was not a significant variable in the main analysis of variance, examination of the means via the Duncan's test points to a trend in support of the hypothesized interaction under advocacy of positive shift. Here, the social validation instruction set did yield more conformity under the heterogeneous than under the homogeneous dispersions. The reverse occurred with the empirical validation instruction set which yielded more conformity under the homogeneous dispersions than under the heterogeneous ones. Only the means of the group under the empirical instruction set were significantly different from each other for the two types of dispersions.

These results may be the net effects of several factors. The predicted but not observed interaction of instruction set by type of dispersion may have been mediated firstly, by the significant direction of shift variable and secondly, by the type of stimulus-items used.

Although the observed interaction was not significant, inspection of the condition means suggests that direction of shift moderated the instructions and dispersions relationship with the conformity scores.\* This indicates

\*The Duncan's test for the total sample ( $n = 80$ ) more strongly supported the hypothesized interaction under advocacy of positive shift but not under advocacy of negative shift, the means here being significantly different to a greater extent than with the sample of 70 subjects. The form of the interaction (Figure 1) was the same with both samples.



support for Levy's model (1964, 1967) which postulates that variance will be favorably viewed only if the total situation is already an attractive one. In the present study, advocacy of positive shift may have been considered advocacy of a more positive stand to the stimuli, or a case of approach-approach conflict (levy,,1964). Alternately, advocacy of negative shift may have been considered in more unfavorable or avoidance terms. Levy's model would hypothesize that variance in this case would contribute to further making the total situation more unfavorably perceived.

The second variable may relate to an aspect of the total stimulus-configuration which was at least partially impossible to control. Each subject had a unique stimulus-items combination wherein content of items was uncontrolled because of the finite nature of the subject population. At the same time, a re-examination of the stimulus-items suggests that some items may be potentially conceived of as being of a more empirical nature than other items which are more directly of a personal choice nature perhaps bordering on aesthetic and moral preferences. For example, it is possible to visualize statistically based answers for items (2), (3), and (8) while other items as (6) and (12) may relate to a highly technical knowledge of particular types of literature and literary trends. Still other items as (1), (5), (9),





and (11) may loosely tie in with subject feelings on a "moral"-action dimension as exemplified by "should do" and "should not do" statements, and (4) and (7) may refer to individually defined aesthetic preferences. Although subjects were selected on the basis of indicating they were not involved in the critical items, these subjects' positions could have represented different categories of noninvolving issues through their selection of different items contents to respond neutrally to in the initial ratings. This suggests a re-examination of the hypothesis with a further attempt at more stringent stimulus-item content.

The findings of Peterson (1967) may point to another reason for some of the subjects' lack of acceptance of perceived others' ratings in determining their own responses. Peterson's results showed that constant estimates of the stimuli by confederates failed to exert an influence on the subjects. Only when confederate estimates varied did they exert an influence on the subjects. In this study, because of the definitional restriction of critical item neutrality to a numerical range of twenty units (40% to 60% agreement), many subjects received the same dispersion of bogus others' ratings for two or for all three of the critical trials. This numerical sameness of perceived others' ratings



could have been heightened with the homogeneous dispersions where the numerical ratings were two units apart. An ad hoc examination of the conformity scores did reveal a tendency for those subjects who received the same critical-items dispersion more than once to shift their positions somewhat less than those subjects who received different dispersions for one or more critical items.

One explanation of these observations may be that subjects perceive other group members who do not vary their judgments as less discerning and therefore making judgments which are less accurate or less valid. Hence, the judgments of such subjects may be heeded less in determining one's own position than the judgments of other subjects who do vary their ratings and who thereby may appear to be more acute discriminators of the stimuli in question.

Another possible explanation may be that subjects' suspicions of the experimental manipulations may rise with recurrence of the same ratings of others over more than one trial. If this is enhanced by other cues in the experimental situation which also serve to arouse suspicion (in this study, for instance, the writing sounds from the adjoining cubicles), the net result may be a subject sophistication variable. This may be comprised of varying degrees of subject perceptions of conflicting stimulus situation cues and



his capacity for combining them. An attempt was made to eliminate this in the present study by omitting from the final sample those subjects who expressed any suspicions of the experimental procedure. In spite of this, it is still possible that some subjects who were suspicious were included in the final analysis.



### Summary and Suggestions for Further Research

The main finding of this study is that the direction in which subjects are being advocated to shift is a significant variable and should not be counterbalanced as is usually the practise. Positive (numerically increasing) shift advocacy appears to produce significantly more conformity than does advocacy of shift in a negative direction (numerically decreasing). Another implication arising from this study is that this variable may be responsible for interaction effects with other variables. Positive shift advocacy appeared to indicate a trend towards the hypothesized interaction between dispersion and conformity while means under the negative shift advocacy yielded no such trend.

Further examination of the three main factors is needed where better control can be maintained over stimuli content. Specifically, a re-test of the major hypothesis examined in this study but using constant stimulus-items should help clarify the results. The hypothesis could be examined separately for different categories of noninvolving issues. Some examples of possible categories may concern areas as politics, predictions regarding probable future events and criteria for literary and artistic critiques.

Implementation of such stimulus-items testing would necessitate more control over the population from which





the sample was drawn than was possible in this study. Besides obtaining some indication of noninvolvement, the population would also need to be examined on what constitutes noninvolvement. In addition to the lack of familiarity or its presence for an issue, different degrees of personal interest could exist. Post-experimental comments in the present study suggested that at least these two factors must be considered in any definition of noninvolvement. This is because a combination of some familiarity but lack of personal interest in a topic may require a different combination of stimulus dimensions to effect conforming responses than would, for example, a combination of no familiarity but considerable interest. This interest factor may be a major component of the differential involvement of stimuli discussed earlier.

The question of same versus different confederate or bogus ratings of the stimuli on successive trials requires further examination. This aspect of group variance over a series of trials appears to warrant separate and independent examination from the question of within-trial group variance. As the between-trials variance was not controlled in this study, no direct statements regarding it are possible. A post hoc t-test between subjects receiving the same group dispersion more than once and those subjects receiving different



group dispersions on each critical trial was nonsignificant. This factor could, however, still have been a contributing one to the observed ambiguity of the results as a trend was noted for subjects receiving the same dispersion more than once to conform somewhat less.



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## A P P E N D I C E S



## Appendix A

## Item Questionnaire

Name \_\_\_\_\_

Sex \_\_\_\_\_

Please read the following statements and indicate the extent of your agreement with each one by placing a number on the line provided. 0 indicates complete disagreement; 100 indicates complete agreement. Also, indicate how intensely you feel about your agreement or disagreement with each issue by putting a check ( ) in the appropriate space, and how familiar (thought, read or talk about) you are with each issue.

(1) The Liberal Party is likely to bring Canada prosperity \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very           fairly           neutral  
           strongly       strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat    very  
       familiar    familiar    familiar

(2) Newspaper advertising should be more effective in changing public opinions than radio advertising \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very           fairly           neutral  
           strongly       strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat    very  
       familiar    familiar    familiar

(3) Atomic powered electricity for home consumption should be a reality by 1977 \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very           fairly           neutral  
           strongly       strongly

I am \_\_\_\_\_ with this issue.  
       not at all   fairly        very  
       familiar    familiar    familiar





(Appendix A continued)

(4) City planners should consider the aesthetic nature of their plans, not just their usefulness \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.

very      fairly      neutral  
strongly   strongly

I am \_\_\_\_\_ with this issue.

not at all   somewhat      very  
familiar      familiar      familiar

(5) Censorship is necessary as those who make movies, write books, etc. do not seem to exert any self control. \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.

very      fairly      neutral  
strongly   strongly

I am \_\_\_\_\_ with this issue.

not at all   somewhat      very  
familiar      familiar      familiar

(6) It cannot be said that there is such a thing as religious drama but merely some plays with ethical and moral overtones \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.

very      fairly      neutral  
strongly   strongly

I am \_\_\_\_\_ with this issue.

not at all   somewhat      very  
familiar      familiar      familiar

(7) The golden section and laws of proportion are very important in good art work \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.

very      fairly      neutral  
strongly   strongly

I am \_\_\_\_\_ with this issue.

not at all   somewhat      very  
familiar      familiar      familiar

(8) Radio today, in a society predominated by television, must drastically change its approach and style or it will soon be a dead institution \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.

very      fairly      neutral  
strongly   strongly

I am \_\_\_\_\_ with this issue.

not at all   somewhat      very  
familiar      familiar      familiar



(Appendix A continued)

(9) Writers have no business meddling in politics, nor do any other artists. \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very       fairly       neutral  
           strongly   strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat   very  
       familiar    familiar   familiar

(10) A work of art loses most of its vital impact if the social setting in which it was created is ignored \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very       fairly       neutral  
           strongly   strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat   very  
       familiar    familiar   familiar

(11) Architecture is an art form, it should not be considered simply utilitarian \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very       fairly       neutral  
           strongly   strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat   very  
       familiar    familiar   familiar

(12) The interest in "camp" movies is simply an attempt to cling to and idolize the past \_\_\_\_\_

I feel \_\_\_\_\_ about my position on this statement.  
           very       fairly       neutral  
           strongly   strongly

I am \_\_\_\_\_ with this issue.  
       not at all   somewhat   very  
       familiar    familiar   familiar



## Appendix B

### General Instructions

You will be given several items successively. Please rate the extent of your agreement or disagreement with each of the items on a sheet of the paper which is provided at your table.

Once the experiment is in progress, you will receive the first item you are to rate. When you complete your rating of this item, please pass your slip of paper and the card on which the item is printed through the porthole where it will be collected. You will then be given the next card with the next item you are to rate written on it. We will proceed in this way until we have completed all the items.

At the beginning of the experiment session, you will also be assigned a subject identification number from 1 to 5 at random. Please be sure to place this number on all your slips of paper which contain your ratings.

Remember that 100 indicates complete agreement and 0 complete disagreement. Be sure to use whatever number best describes your agreement in all cases. You are not limited to multiples of 5 or 10.



## Appendix C

## Socially Oriented Instruction Set

## (E Instructions--Verbal)

The purpose of this experiment is to check under standard lab conditions your opinions of statements you had previously rated under uncontrolled conditions (i.e. in class). These items have not been evaluated under standardized conditions. We therefore wish to collect enough data under such conditions so that norms can be established for them.

To enable more efficient and quicker tabulation of the information being gathered, one person will be chosen at random from this group to act as a recorder. This person will be given two extra pages which will be attached to the first item card. The recorder instructions sheet will give directions for the marking in of each group member's opinions for each item as well as a designated space for the recorder's own ratings.

Are there any questions?--Please do not communicate with each other or myself once the experiment session has begun. If any questions occur to you while the experiment is in progress, please reserve these until the session is ended. If you should happen to get "stuck" as to what to do in any instance, please write your question on a piece of the scratch paper and pass it to me through the porthole.







## Appendix D

## Empirically Oriented Instruction Set

## (E Instructions--Verbal)

The purpose of this experiment is to check under standard lab conditions your opinions of statements you had previously rated under uncontrolled conditions (i.e. in class). These items have been evaluated by such experts as sociologists, artists, and statisticians who have set up norms on them. However, we would like to have information on how the average college student (and not an expert) would view these same statements. Therefore, the purpose of this experiment is to collect information on how college students' judgments would compare with those of experts in the field.

To enable more efficient and quicker tabulation of the information being gathered, one person will be chosen at random from this group to act as a recorder. This person will be given two extra pages which will be attached to the first item card. The recorder instructions sheet will give directions for the marking in of each group member's opinions for each item as well as a designated space for the recorder's own ratings.



(Appendix D continued)

Are there any questions?--Please do not communicate with each other or myself once the experiment session has begun. If any questions occur to you while the experiment is in progress, please reserve these until the session is ended. If you should happen to get "stuck" as to what to do in any instance, please write your question on a piece of the scratch paper and pass it to me through the porthole.



## Appendix E

## Recorder Instructions

As recorder for the group, you are subject number 5. Therefore, you are asked to complete the four columns for subjects one to four before giving your own rating for each item.

Please note that as recorder for the group you are to enter your own rating of each item last under the appropriate heading. Then, after each item, pass back all the slips with ratings through the porthole. Remember that accuracy is of prime importance. Please enter each of the ratings under the appropriate column with the utmost care.



Appendix F

Recorder Chart

Subject	Item Number											
	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												





## Appendix G

(For use with socially oriented instructions)

## Favorability Questions

Please answer the following questions by placing a check mark (✓) in the section of the box that best expresses your preference or position.

\*1. I was

very interested

--	--	--	--	--	--	--

not very  
interested

in seeing the opinion-ratings of other students on these issues.

\*2. In making judgments on issues which have not yet been evaluated under standard lab conditions and knowing that my ratings would be used for these purposes, I would be interested in discussing my ratings with a group whose opinions were

very similar, or  
clustered very  
closely

--	--	--	--	--	--	--

very different  
from each other,  
or widely  
dispersed

\*3. If I had been aware that these issues had already been evaluated by such experts as artists, sociologists, and statisticians, I would have been interested in discussing my ratings with a group whose opinions were

very similar, or  
clustered very  
closely

--	--	--	--	--	--	--

very different  
from each other,  
or widely  
dispersed

\*During the actual experiment sessions, all these items were presented singly on separate pages.



(Appendix G continued)

(For use with socially oriented instructions)

\*4. In general, I personally prefer a group whose opinions  
are

similar to my own with  
little discrepancy

--	--	--	--	--	--	--

markedly different  
from my own and  
having fairly  
wide discrepancy

\*5. Do you have any comments to make on any part of this  
experiment?

\*6. Did you discuss this experiment or know anything about  
it before you came here today?

\*During the actual experiment sessions, all these items were  
presented singly on separate pages.



## Appendix G

(For use with empirically oriented instructions)

Please answer the following questions by placing a check mark (✓) in the section of the box that best expresses your preference or position.

\*1. I was  
very interested

--	--	--	--	--	--	--

not very  
interested

in seeing the opinion-ratings of other students on these issues.

\*2. In making judgments on issues which have already been evaluated by such experts as artists, sociologists, and statisticians, I would be interested in discussing my ratings with a group whose opinions were

very similar, or  
clustered together  
very closely

--	--	--	--	--	--	--

very different  
from each  
other, or widely  
dispersed

\*3. If I had been aware that these issues had not yet been evaluated under standard lab conditions and that my ratings would be used for these purposes, I would have been interested in discussing my ratings with a group whose opinions were

very similar, or  
clustered together  
very closely

--	--	--	--	--	--	--

very different  
from each  
other, or  
widely dispersed

\*During the actual experiment sessions, all these items were presented singly on separate pages.



(Appendix G continued)

(For use with empirically oriented instructions)

\*4. In general, I personally prefer a group whose opinions  
are

similar to my own  
with little  
discrepancy

--	--	--	--	--	--	--

markedly different  
from my own and  
having fairly  
wide discrepancy

\*5. Do you have any comments to make on any part of this  
experiment?

\*6. Did you discuss this experiment or know anything about it  
before you came here today?

\*During the actual experiment sessions, all these items were  
presented singly on separate pages.





## Appendix H

## Total Conformity Scores

## Instructions

Socially Oriented		Empirically Oriented		
Direction of Shift		Direction of Shift		
Positive	Negative	Positive	Negative	
Hetrogeneous Dispersion	28*	30	25	5
	60	30	25	31
	-35	-50	-29*	14*
	63	65	6	0
	5	-40*	43	15
	-30	-12	8	-14*
	40	-10	27	35
	63	30	38	23
	60	40	48	45
	45	50	-10	40
Group Mean	29(F)	20.333(C)	23.333(D)	24.25(E)
Homogeneous Dispersion	5	-10*	57	35*
	40	-12	11	14*
	21	5	35	2
	70	30	35	5
	41	29	36	66
	50	10	85	40
	-4	25	16	20
	25	0*	63	-17
	40	-10	5*	53
	60	40	55	-10
Group Mean	34.8(G)	14.825(A)	43.555(H)	19.875(B)

(A) to (H) following the group means refers to the ordering used in testing the means for significance with the Duncan's test (given in Appendix K).

\*These subjects were not included in the final analysis of scores because they indicated some suspiciousness of the experimental procedure.



## Appendix I

Summary of an Analysis of Variance of Total Conformity Scores  
(n = 70)

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	154.767	154.767	n.s.
(B)	1	28132.188	28132.188	37.588*
(C)	1	277.398	277.398	n.s.
(A) X (B)	1	37.832	37.832	n.s.
(B) X (C)	1	1373.557	1373.557	n.s.
(A) X (C)	1	257.687	257.687	n.s.
(A) X (B) X (C)	1	185.250	185.250	n.s.
Within	62	46403.125	748.438	

## Legend:

(A)-Instructions

(B)-Direction of Shift

(C)-Degree of Dispersion

\*Significant at the .01 level



## Appendix J

Summary of an Analysis of Variance on the Conformity Scores of  
the Total Sample ( $n = 80$ )

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	99.103	99.103	n.s.
(B)	1	4190.513	4190.513	5.37*
(C)	1	775.013	775.013	n.s.
(A) X (B)	1	690.313	690.313	n.s.
(B) X (C)	1	945.313	945.313	n.s.
(A) X (C)	1	40.613	40.613	n.s.
(A) X (B) X (C)	1	639.913	639.913	n.s.
Within	72	58145.10	979.79	

Legend:

(A)-Instructions

(B)-Direction of Shift

(C)-Degree of Dispersion

\*Significant at the .05 level



(Appendix J continued)

Summary of Duncan's New Multiple Range Test for Means of Total Sample  
(n = 80)

	10.7	13.3	18.1	19.4	20.8	29.9	34.8	39.3	Shortest Significant Range
A=10.7		2.6	6.4	8.7	10.1	19.2	24.1	28.6	9.3899
B=13.3			4.8	6.1	7.5	16.6	21.5	26.0	9.7957
C=18.1				1.3	2.7	11.8	16.7	21.2	10.1149
D=19.4					1.4	10.5	15.4	19.9	10.3453
E=20.8						9.1	14.0	18.5	10.5263
F=29.9							4.9	9.4	10.6678
G=34.8								4.5	10.7853
H=39.3									

A   B   C   D   E   F   G   H



Means not commonly underlined are significantly different from each other at the .05 level.





## Appendix K

# Summary of an Analysis of Group Means with Duncan's New Multiple Range Test

(n = 70)

[illegible][illegible]

Means not commonly underlined are significantly different from each other at the .05 level.



## Appendix L

Summary of an Analysis of Variance on Scores for Favorability Item One  
(n = 70)

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	3.4932	3.4932	n.s.
(B)	1	4.1918	4.1918	n.s.
(C)	1	.5623	.5623	n.s.
(A) X (B)	1	5.4246	5.4246	n.s.
(B) X (C)	1	3.834	3.834	n.s.
(A) X (C)	1	.4733	.4733	n.s.
(A) X (B) X (C)	1	14.4771	14.4771	3.757
Within	62	238.865	3.8526	

Legend:

(A)-Instructions

(B)-Direction of Shift

(C)-Degree of Dispersion



## Appendix M

Summary of an Analysis of Variance on Scores for Favorability Item Two

(n = 70)

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	2.9291	2.9291	n.s.
(B)	1	.552	.552	n.s.
(C)	1	2.2705	2.2705	n.s.
(A) X (B)	1	.2871	.2871	n.s.
(B) X (C)	1	.8247	.8247	n.s.
(A) X (C)	1	2.6744	2.6744	n.s.
(A) X (B) X (C)	1	4.6374	4.6374	n.s.
Within	62	147.71	2.3824	

Legend:

(A)--Instructions

(B)--Direction of Shift

(C)--Degree of Dispersion



## Appendix N

Summary of an Analysis of Variance on Scores for Favorability Item Three  
(n = 70)

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	2.7775	2.7775	n.s.
(B)	1	.4004	.4004	n.s.
(C)	1	7.1712	7.1712	n.s.
(A) X (B)	1	5.0847	5.0847	n.s.
(B) X (C)	1	8.56	8.56	n.s.
(A) X (C)	1	1.4211	1.4211	n.s.
(A) X (B) X (C)	1	3.1685	3.1685	n.s.
Within	62	160.745	2.5926	

## Legend:

(A)-Instructions

(B)-Direction of Shift

(C)-Degree of Dispersion





## Appendix O

Summary of an Analysis of Variance on Scores for Favorability Item Four

(n = 70)

Source of Variation	df	Sum of Squares	Mean Square	F
(A)	1	3.6448	3.6448	n.s.
(B)	1	1.3419	1.3419	n.s.
(C)	1	1.2677	1.2677	n.s.
(A) X (B)	1	20.7061	20.7061	7.0226*
(B) X (C)	1	8.9875	8.9875	n.s.
(A) X (C)	1	9.3626	9.3626	3.175
(A) X (B) X (C)	1	1.7585	1.7585	n.s.
Within	62	182.805	2.9484	

Legend:

(A)-Instructions

(B)-Direction of Shift

(C)-Degree of Dispersion









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